



Armed Forces College of Medicine AFCM



Practical of Histology

Female reproductive and formative exam

Prof. Dr Manal Hassan Moussa

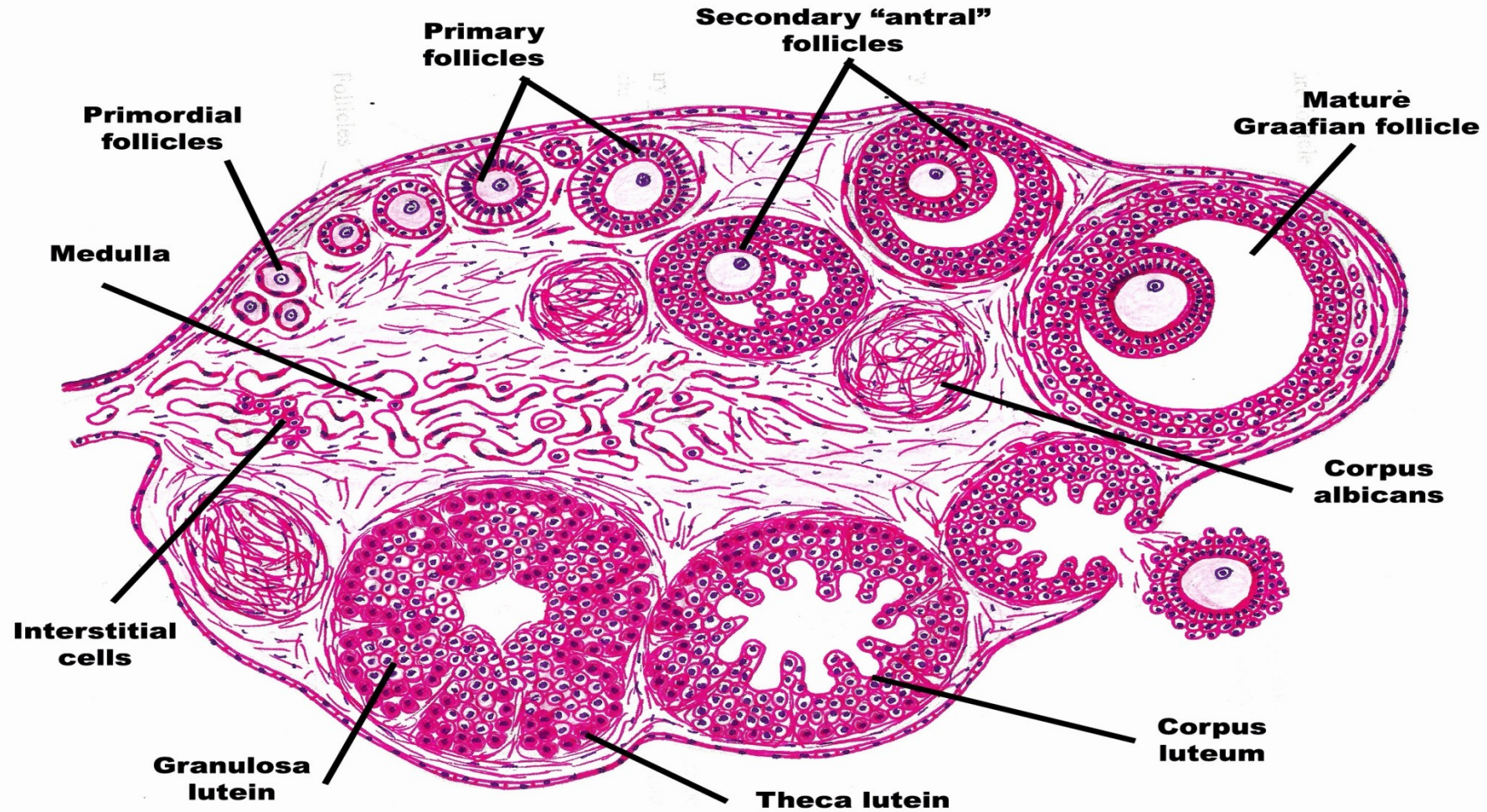
Intended Learning outcome



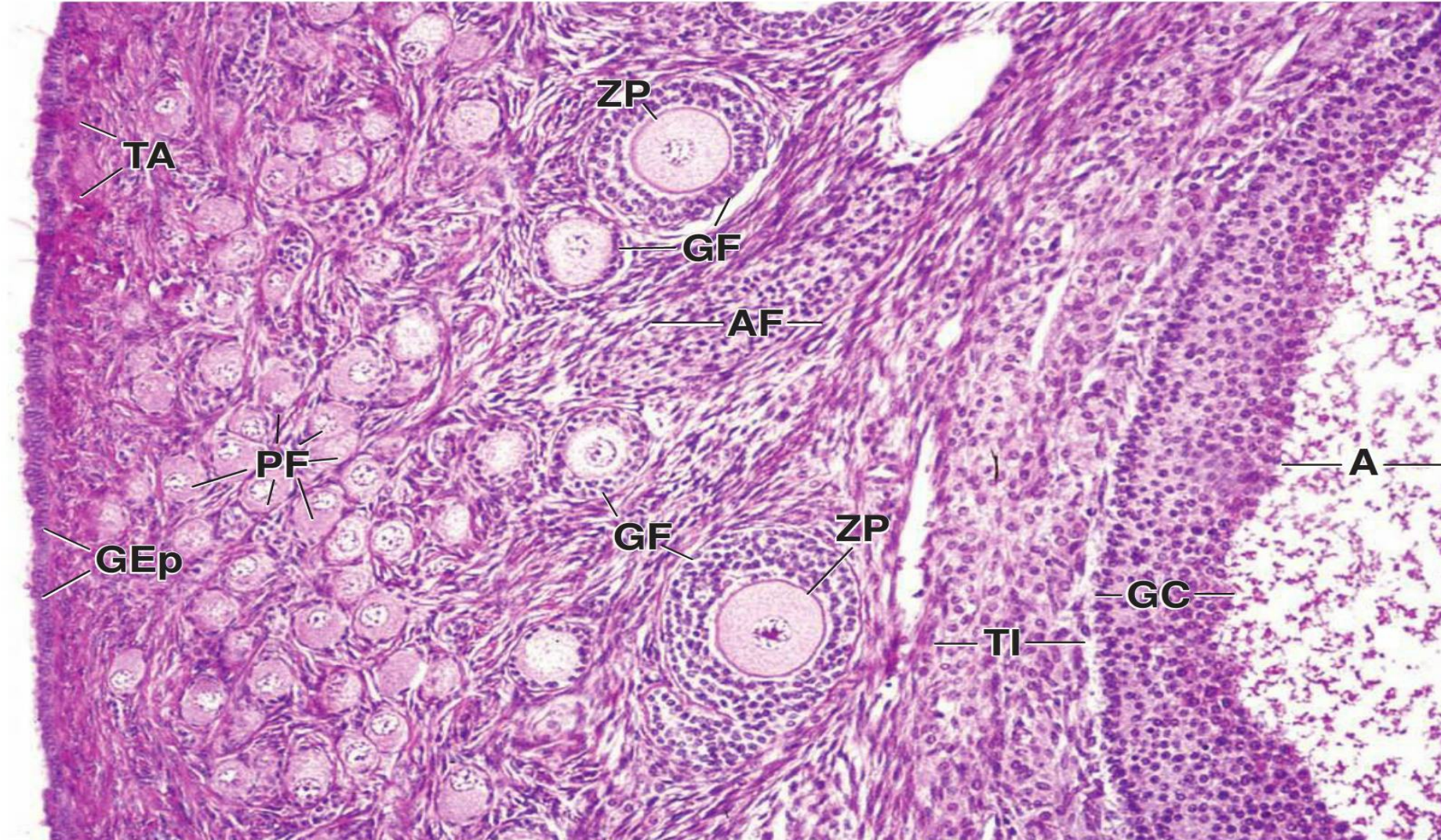
By the end of this practical session the student will be able to:

1. Identify an H&E-stained section of the ovary using the LM.
2. Identify an H&E-stained section of uterus by the LM.
3. Label an electron photomicrograph of fallopian tube lining epithelium.
4. Identify an H&E-stained section of fallopian tube by the LM.

Ovary



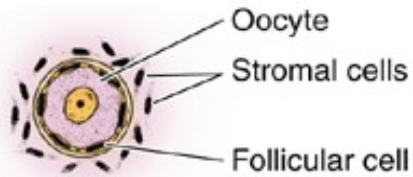
Ovary



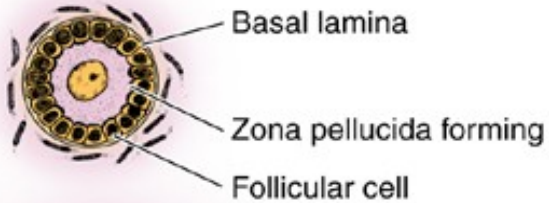
Ovarian follicles & follicular growth



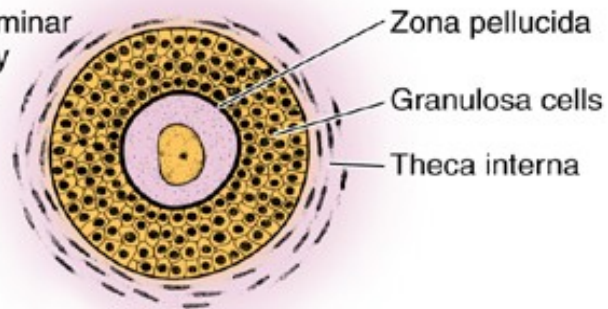
Primordial follicle



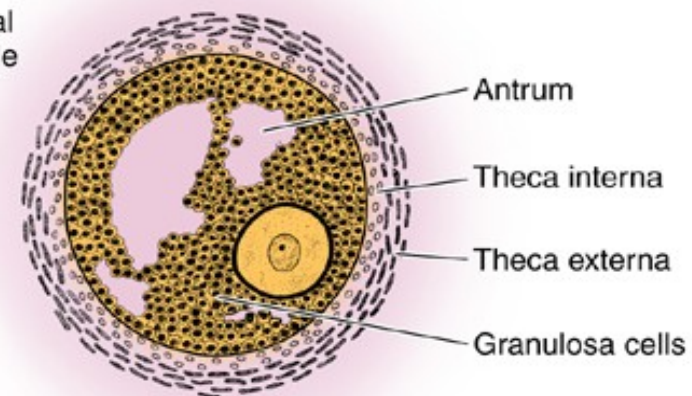
Unilaminar primary follicle



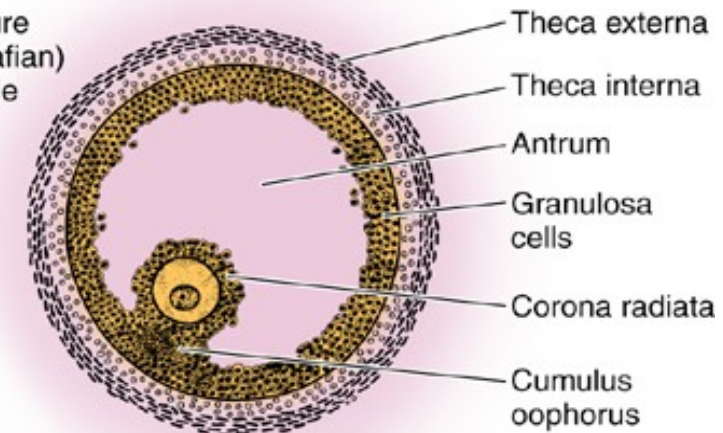
Multilaminar primary follicle



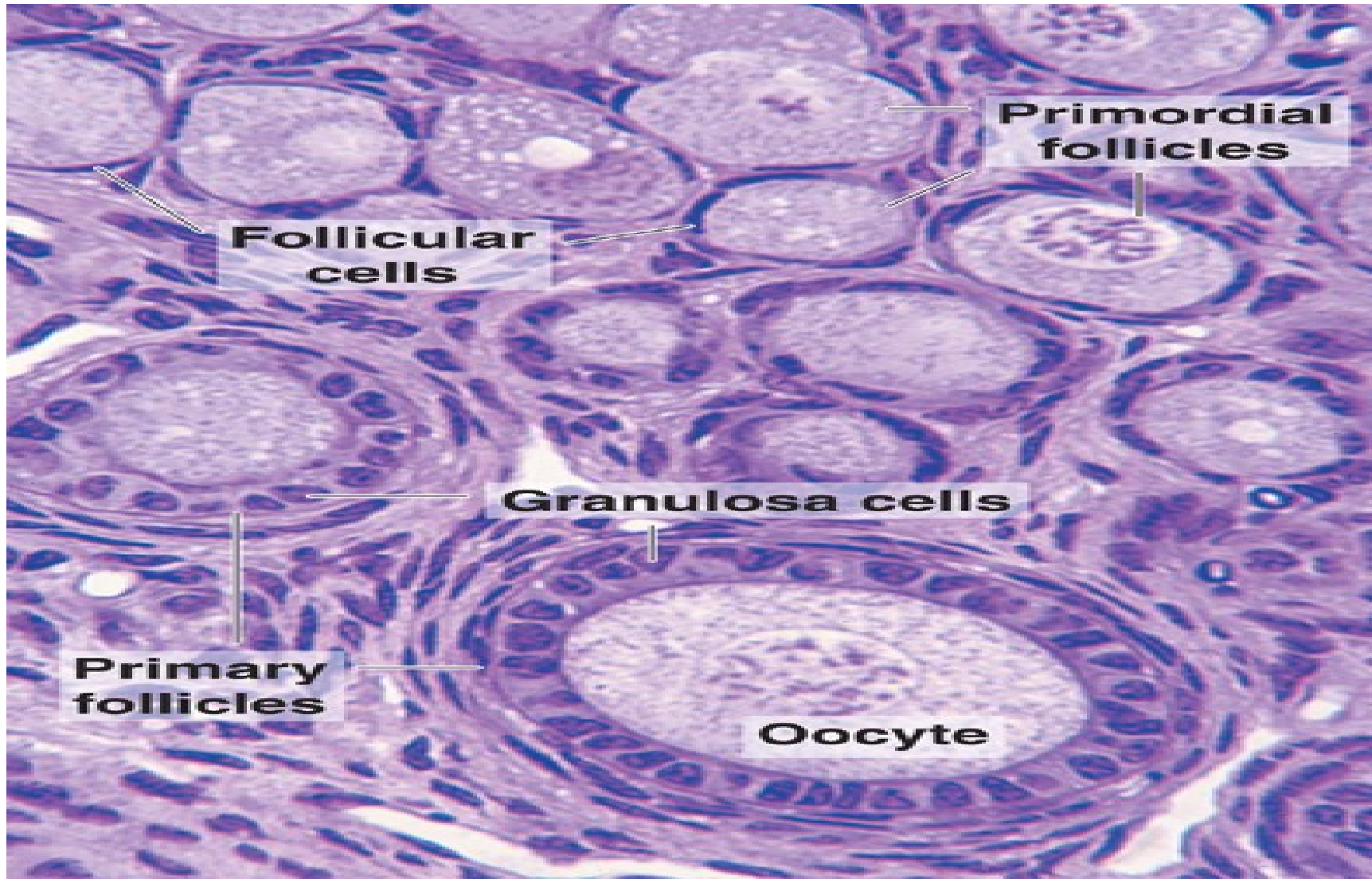
Antral follicle



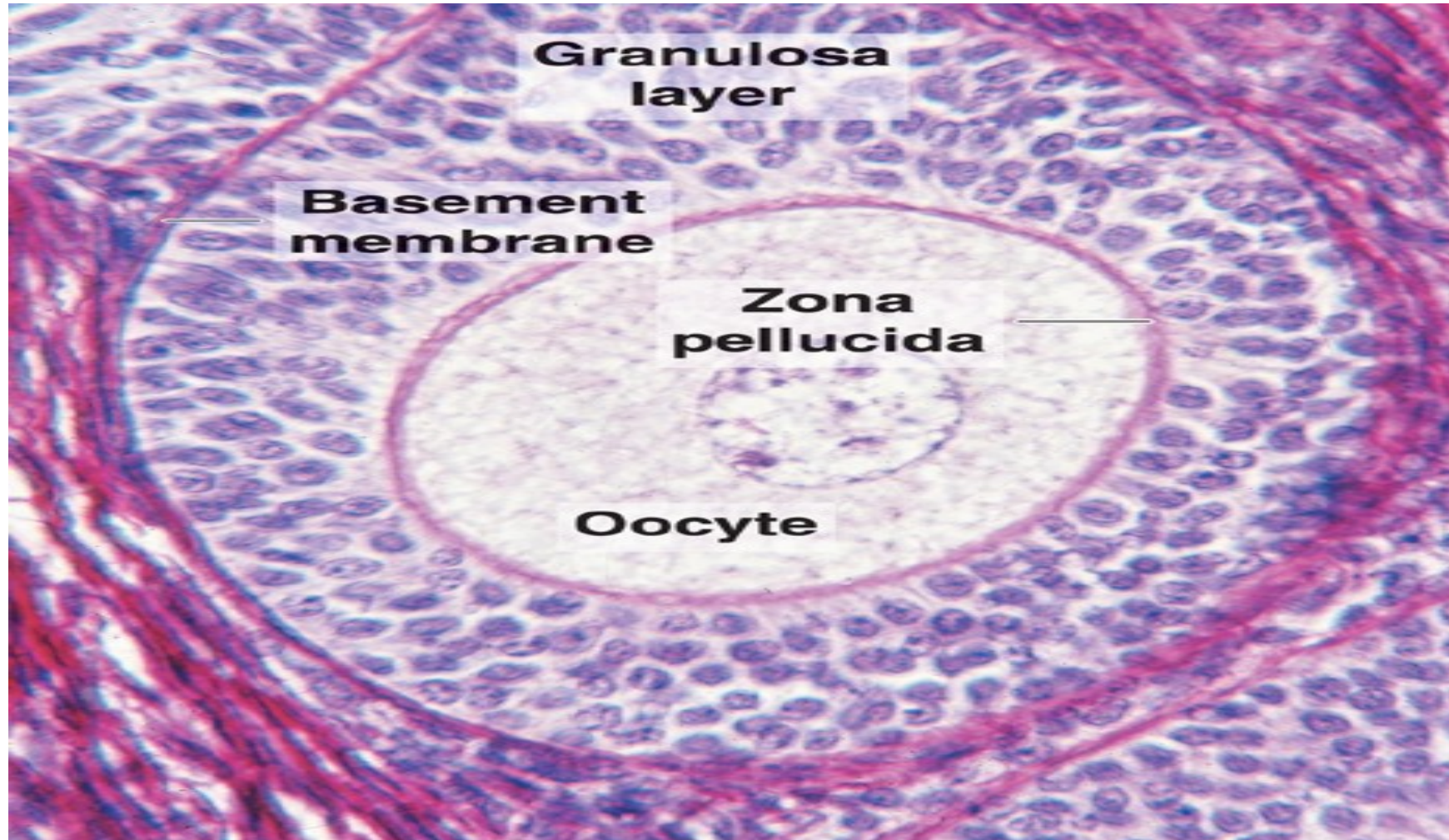
Mature (graafian) follicle



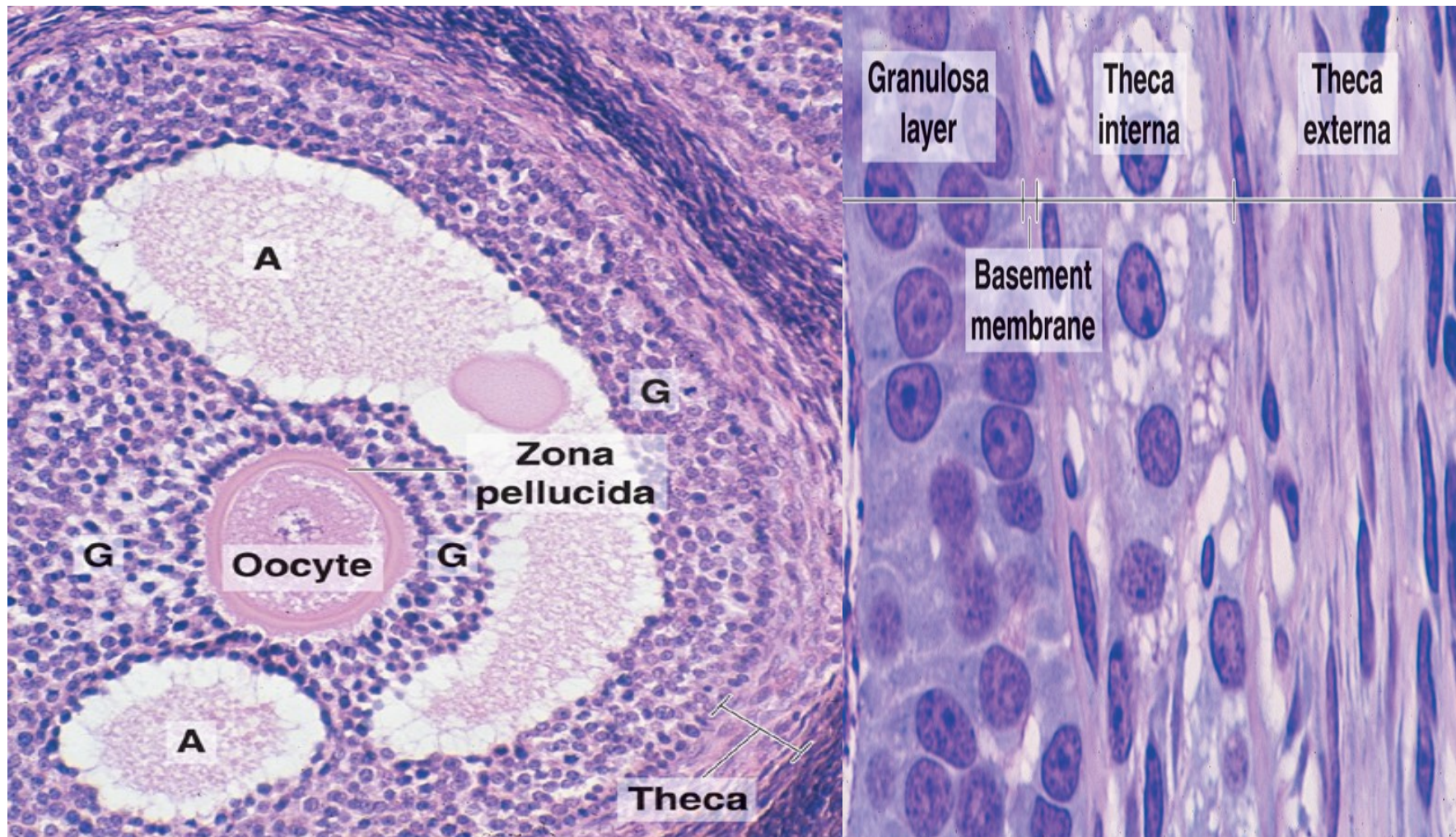
Ovary: Primordial and unilaminar 1erefollicles



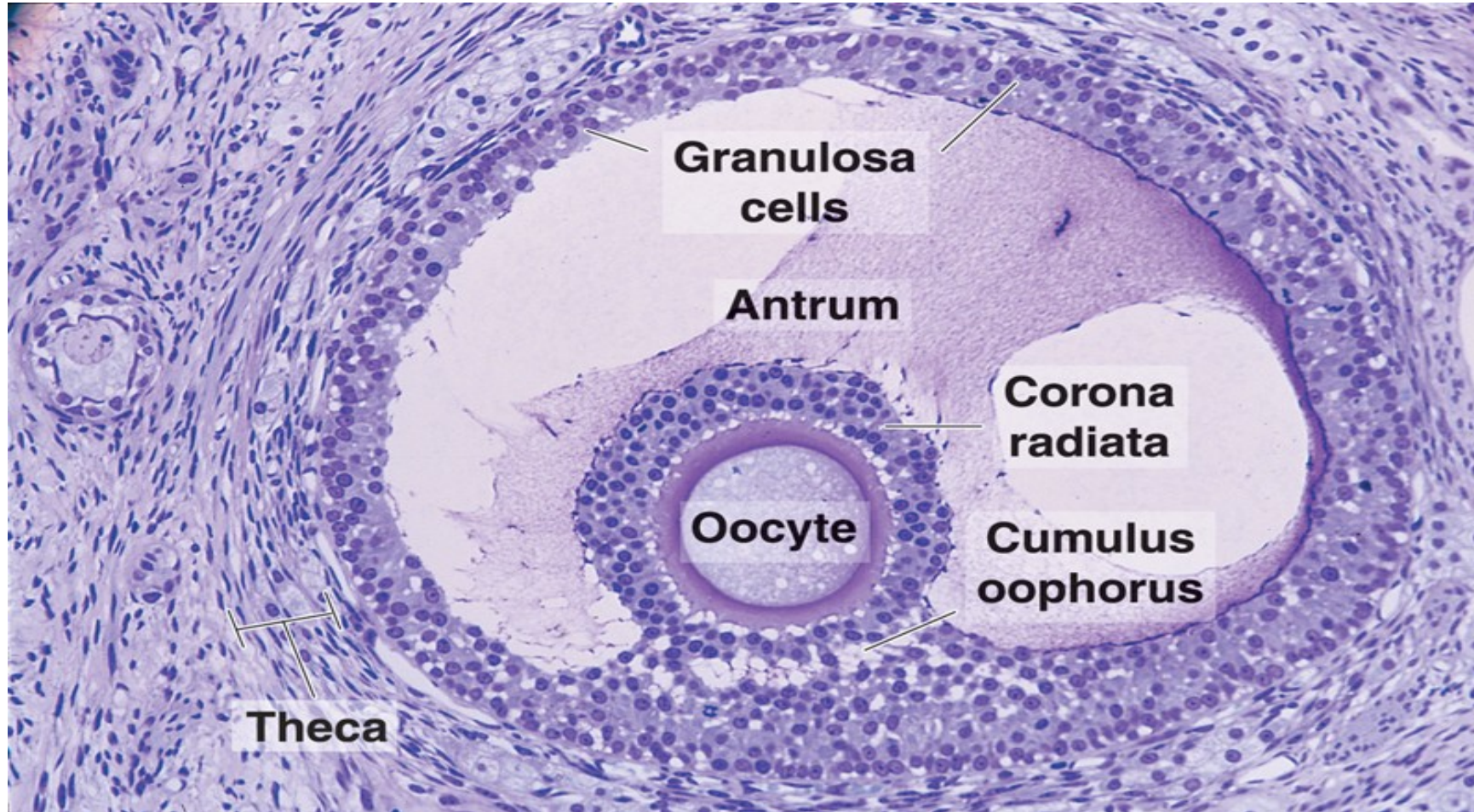
Ovary: Multilaminar primary follicle



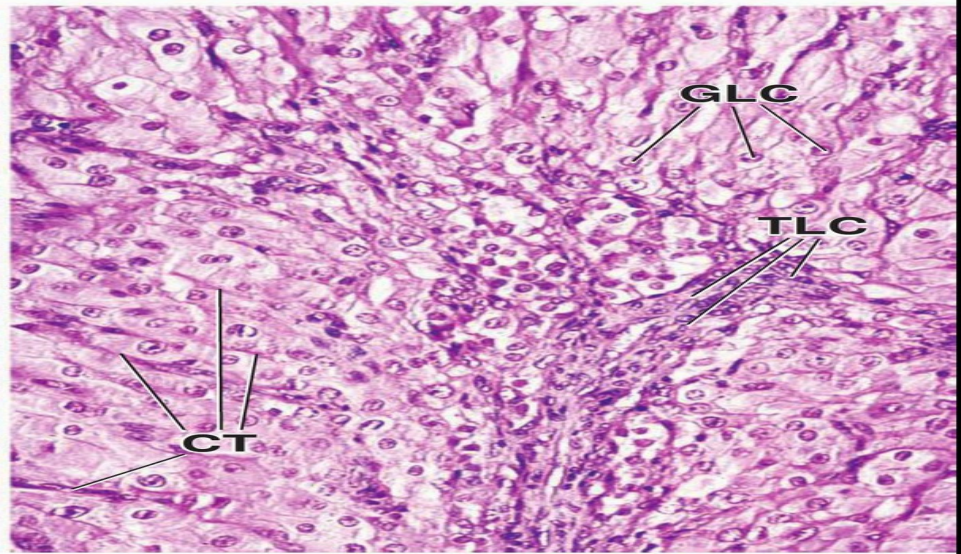
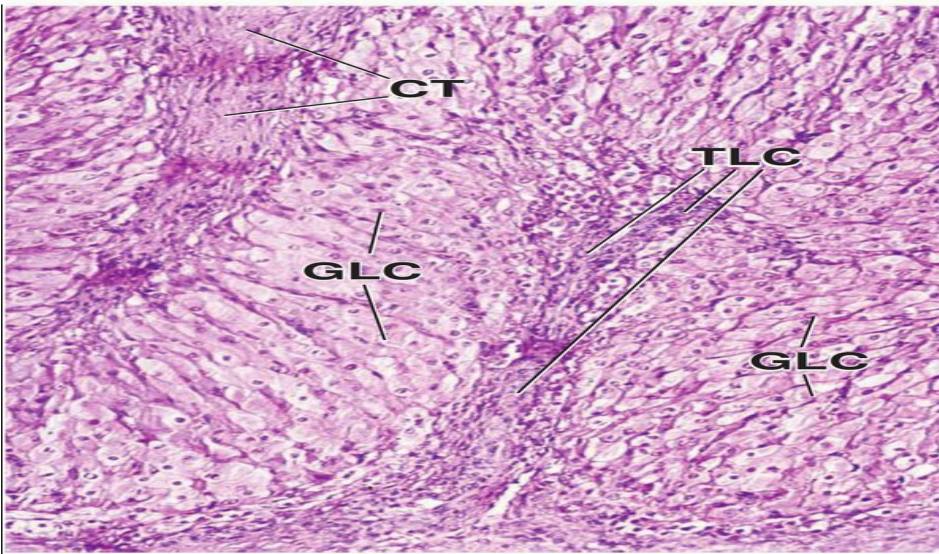
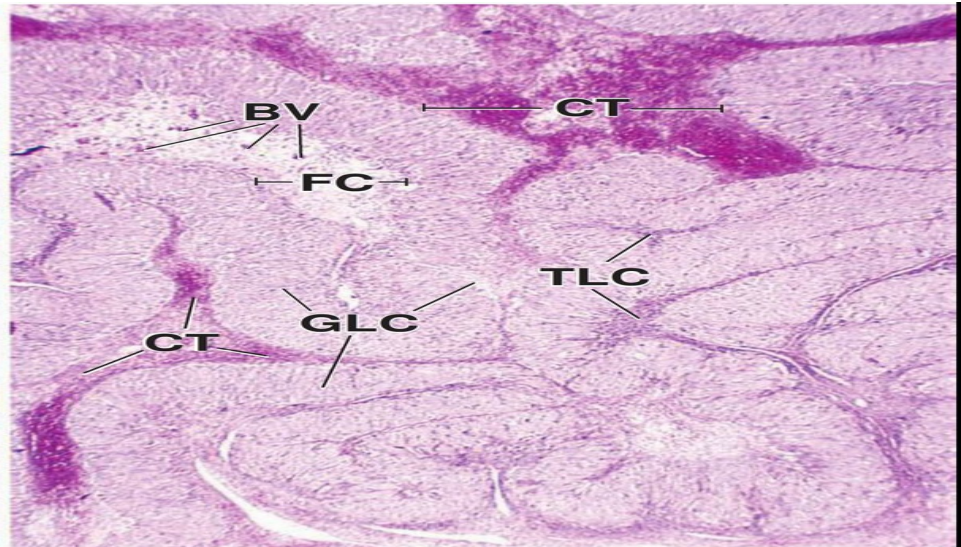
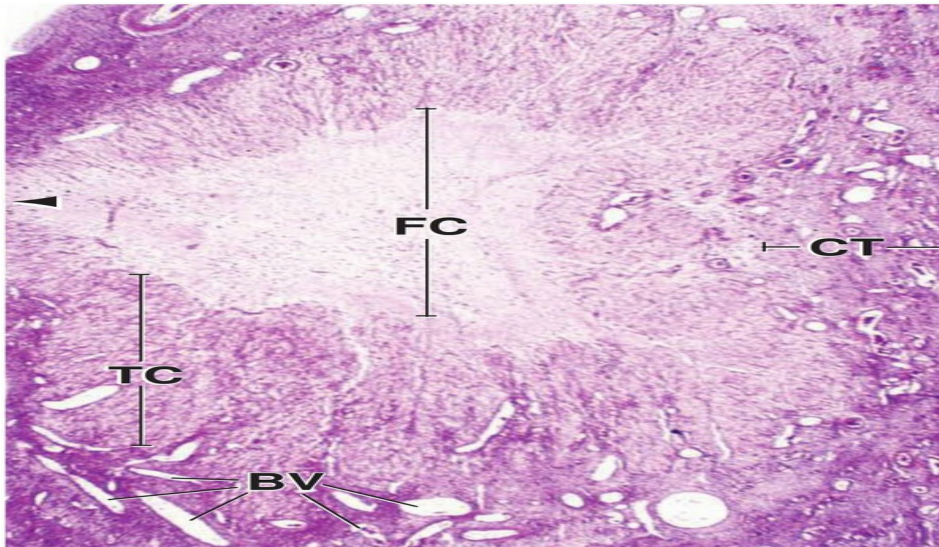
Ovary: Secondary or antral follicle



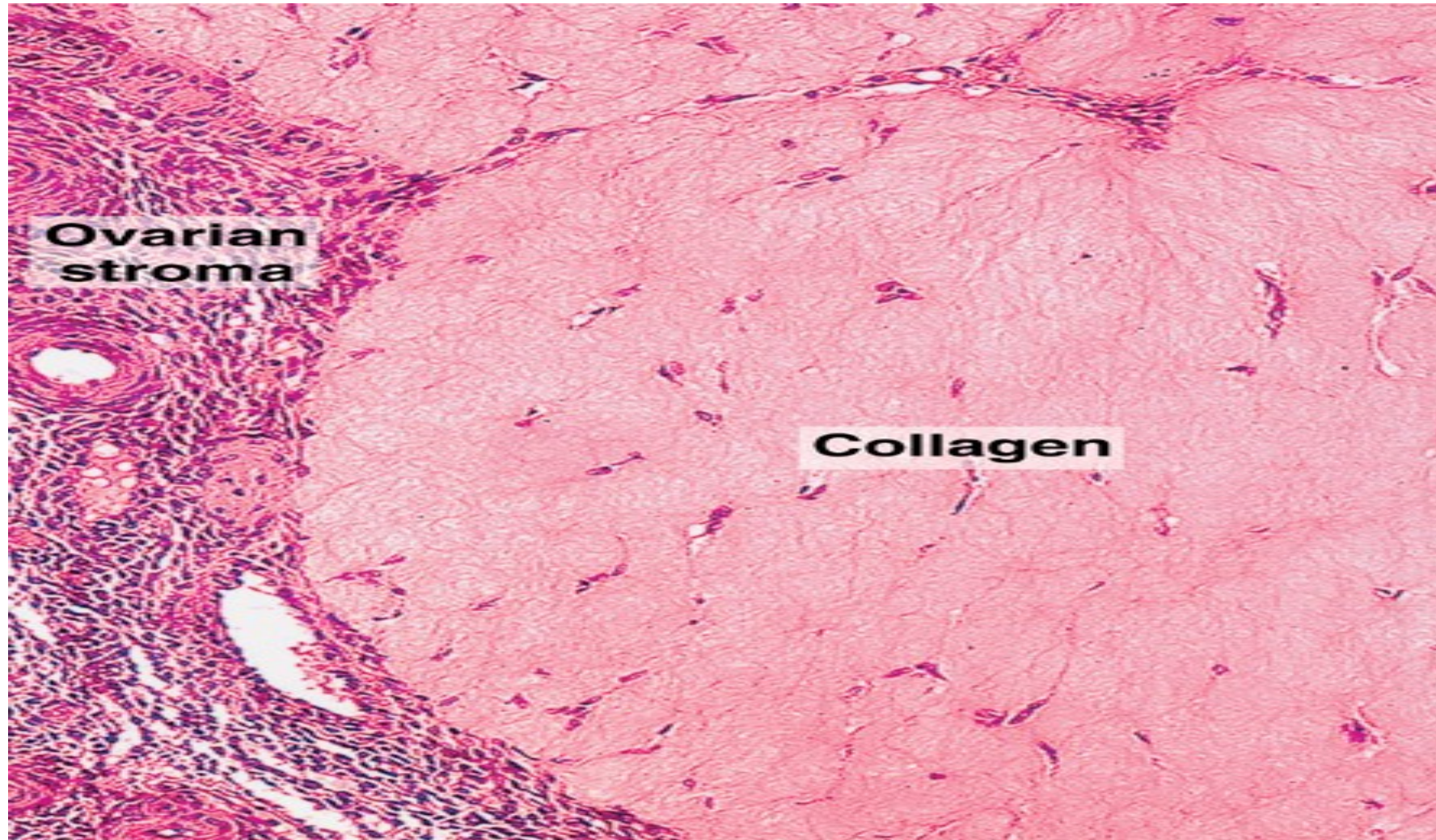
Ovary: Mature or Graafian follicle



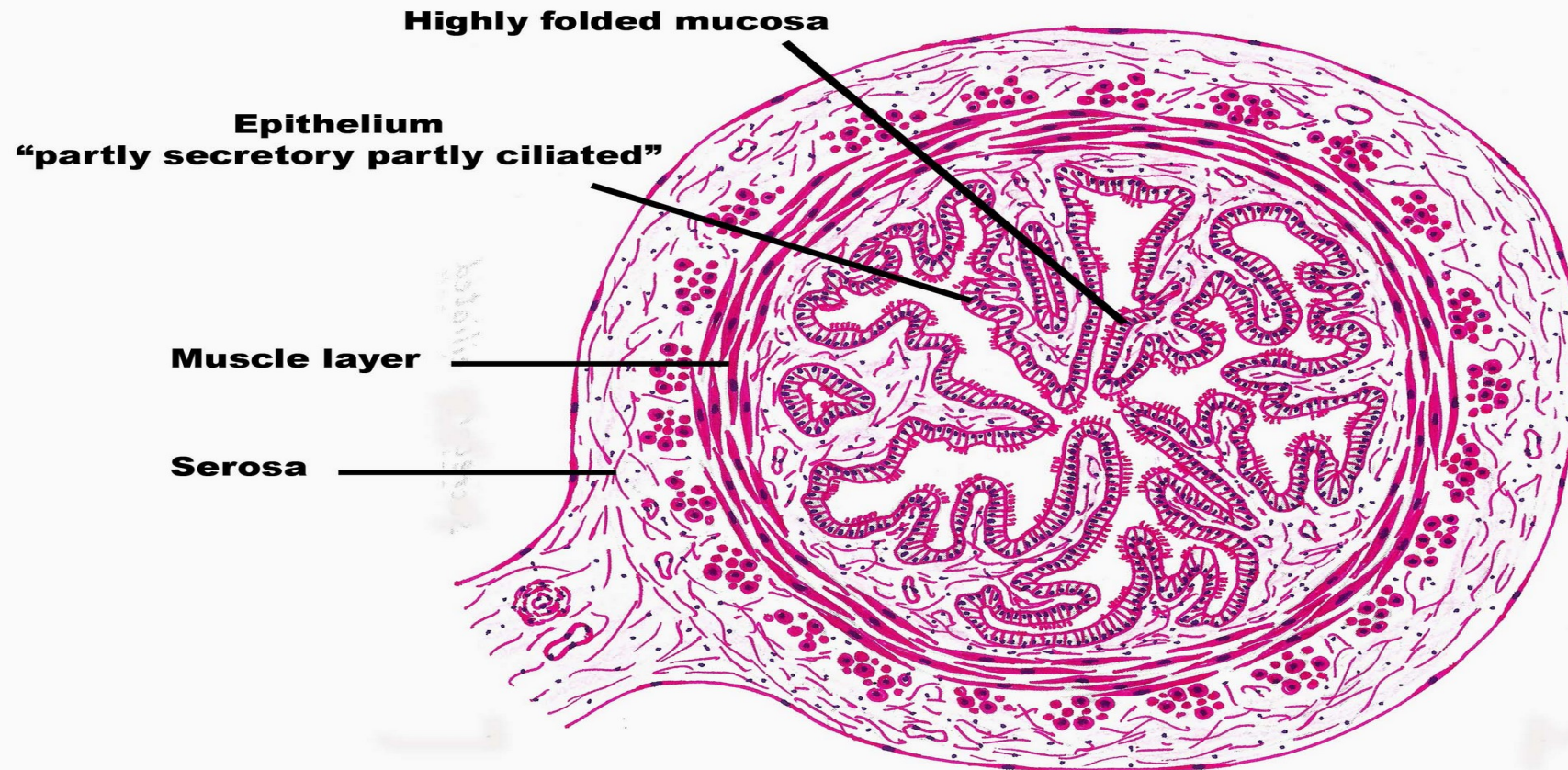
Ovary: Corpus luteum



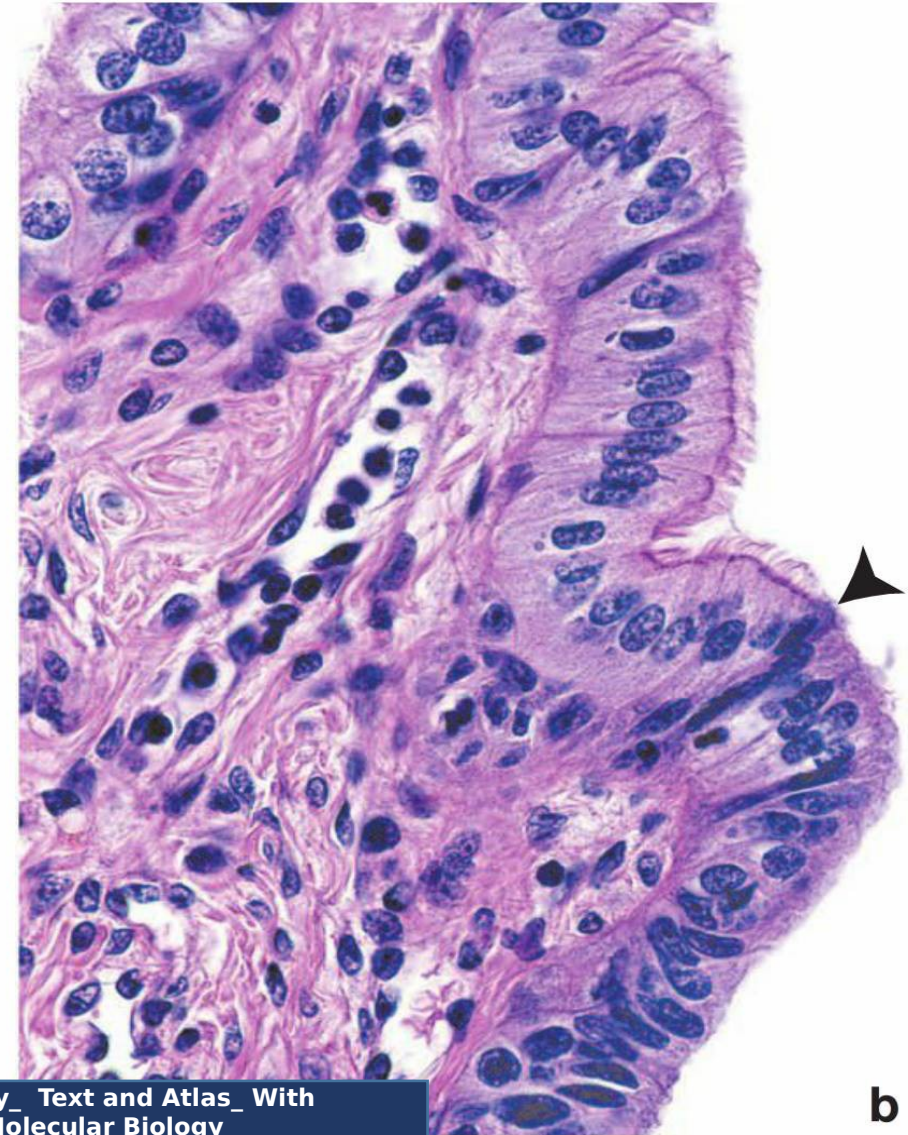
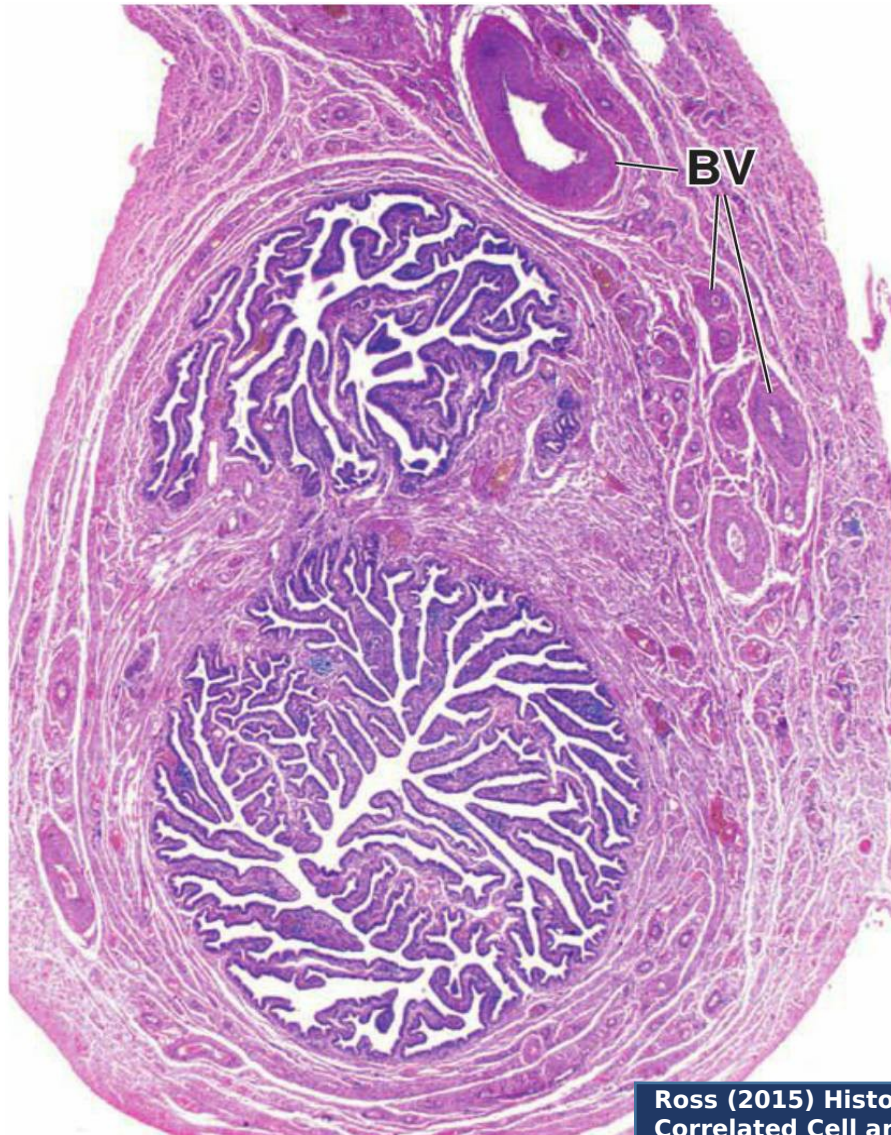
Ovary: Corpus albicans

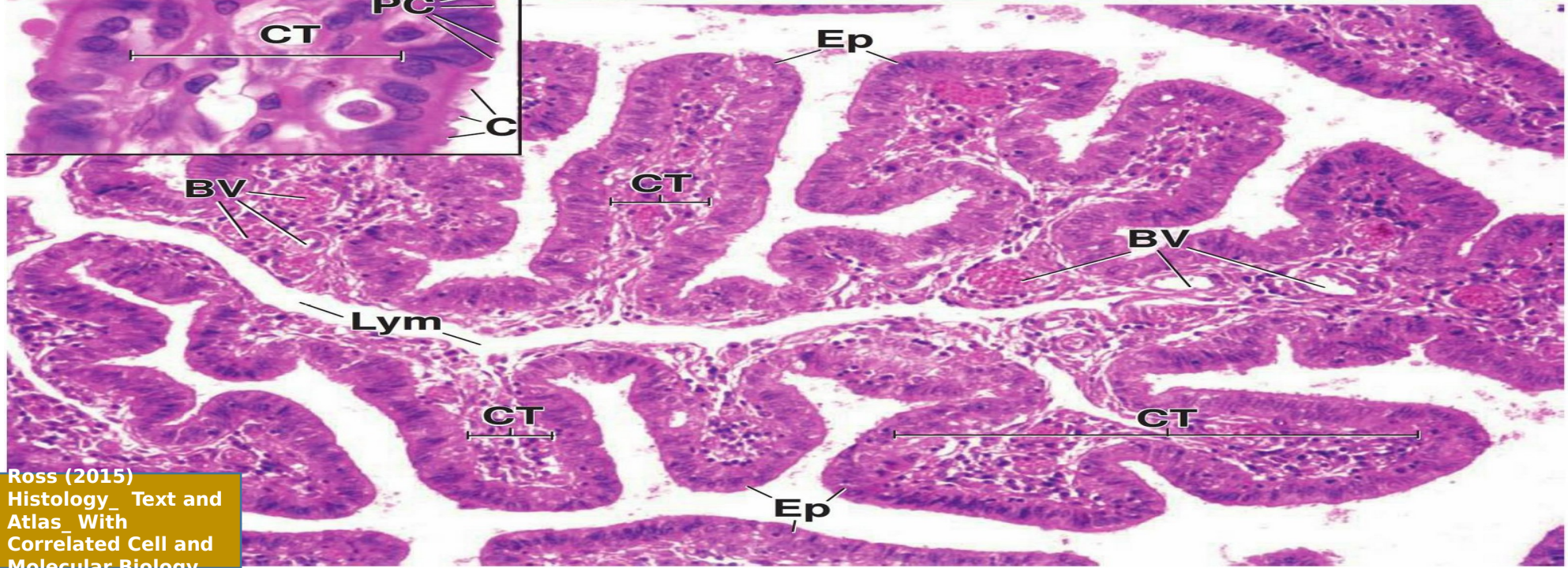
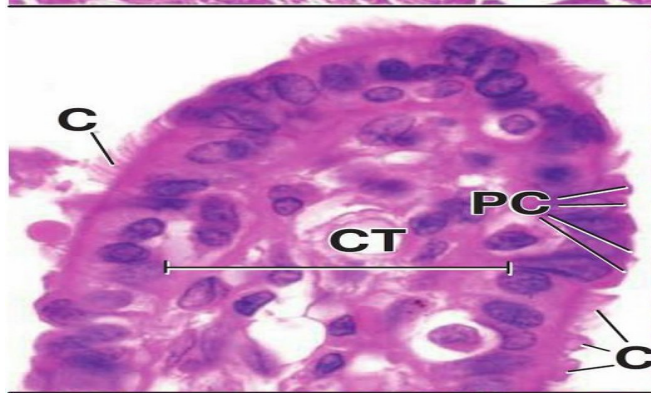
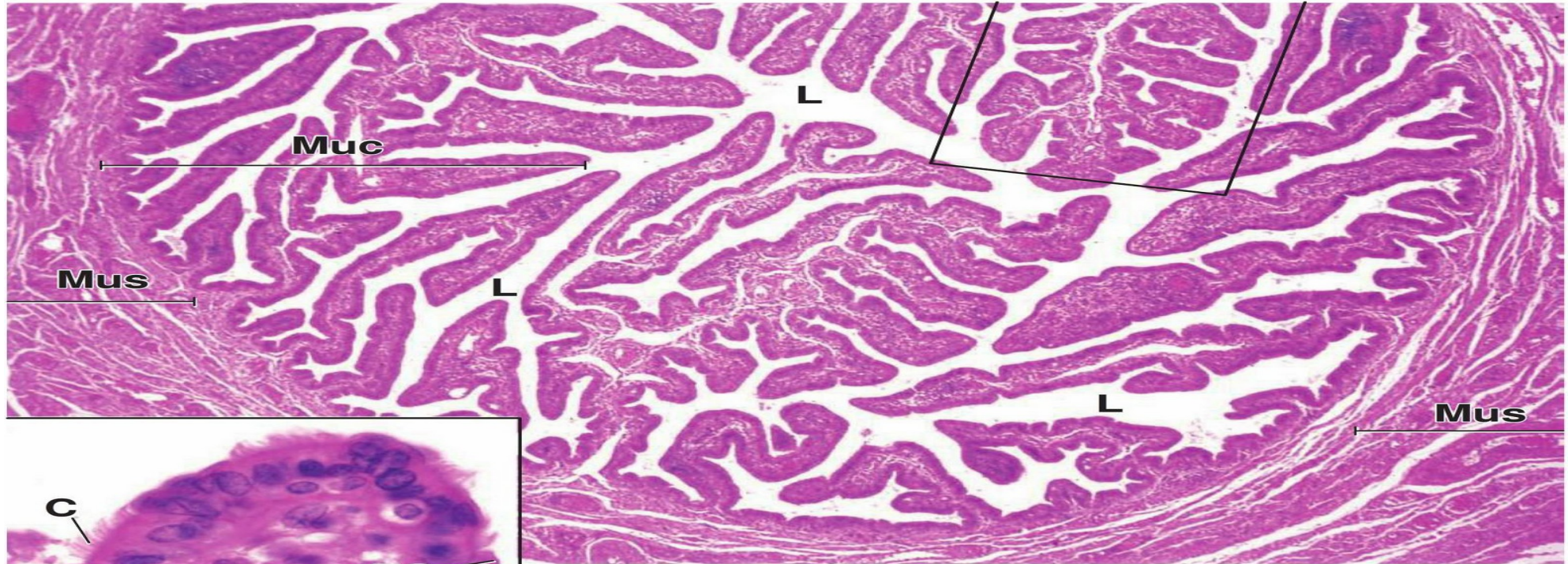


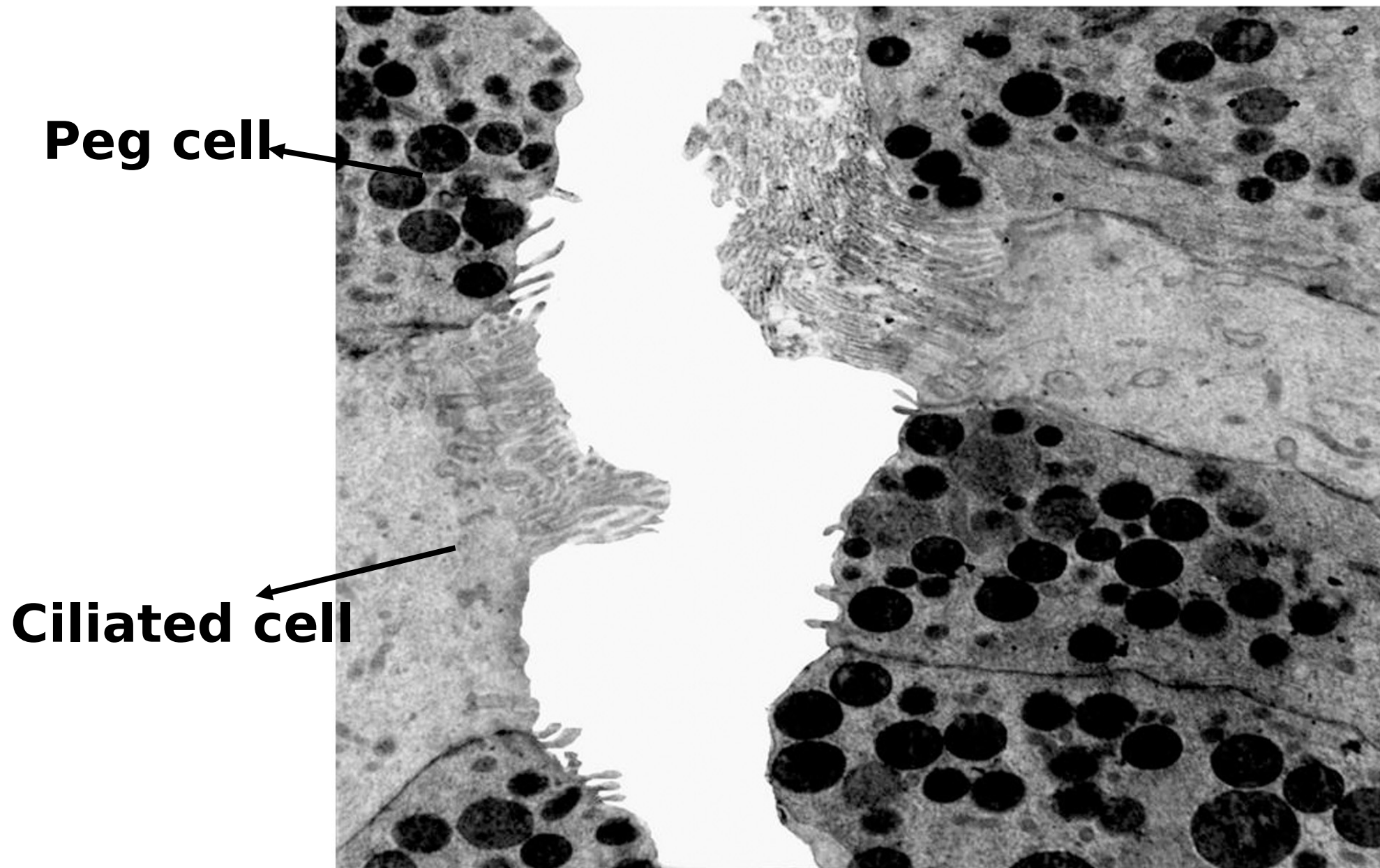
Fallopian tube



Fallopian tube

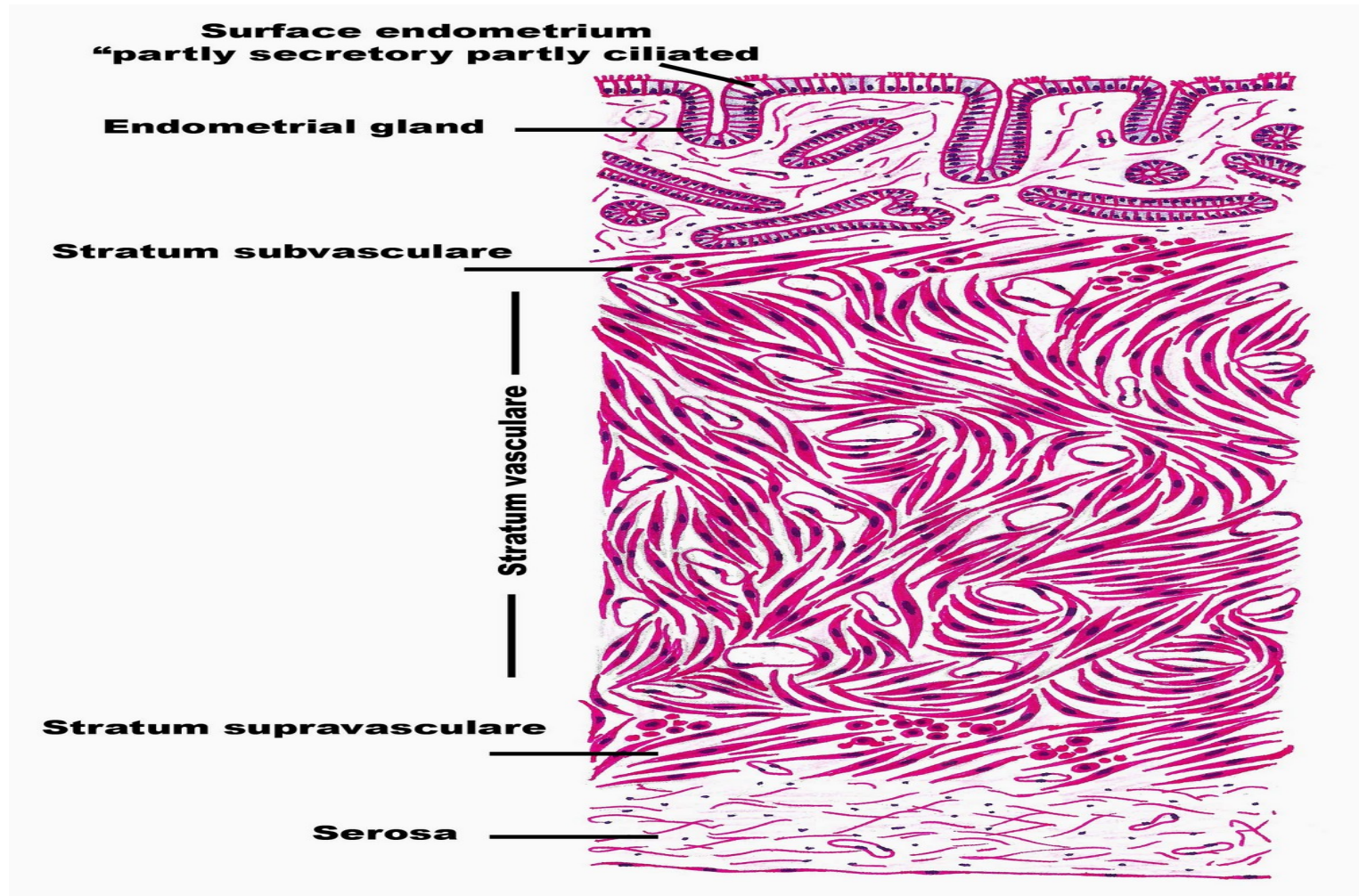




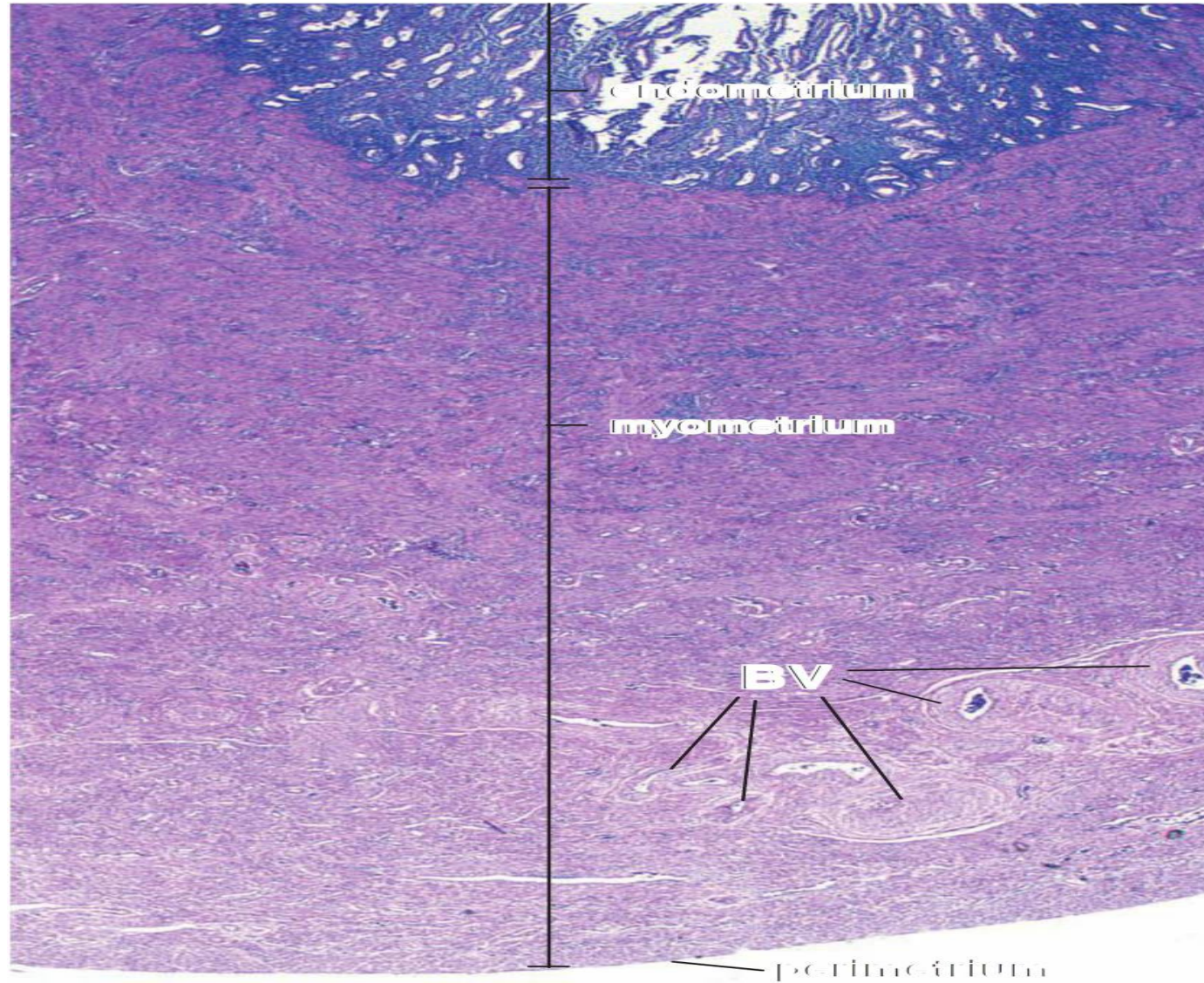


Fallopian tube lining epithelium - ciliated and non ciliated "peg" cell

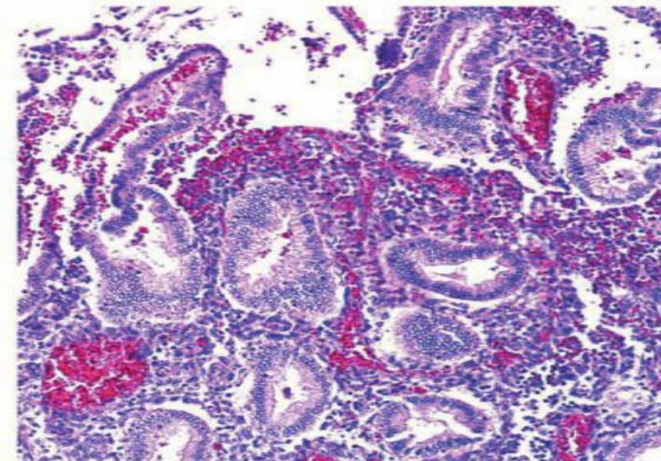
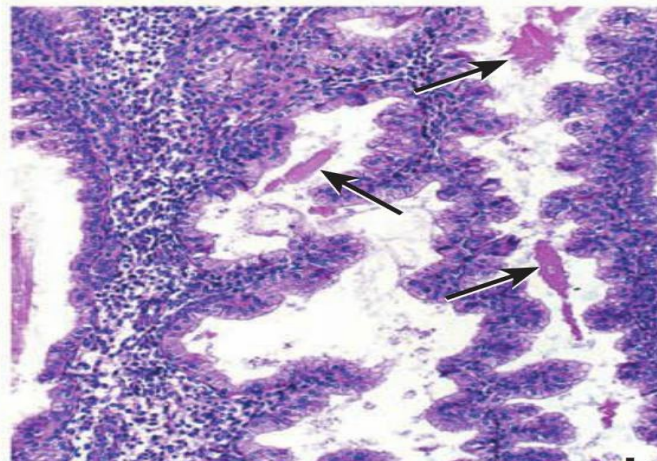
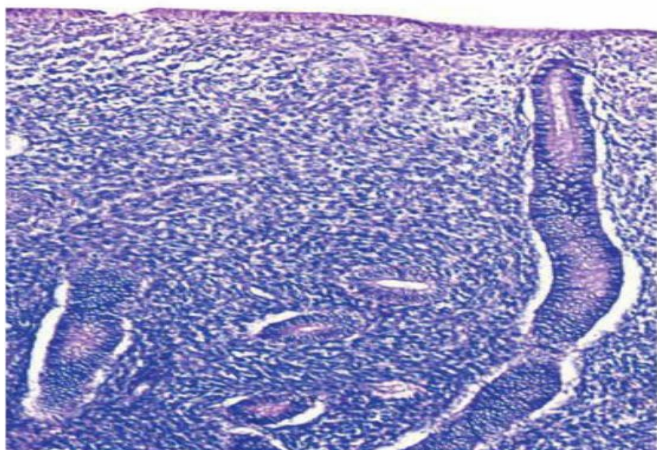
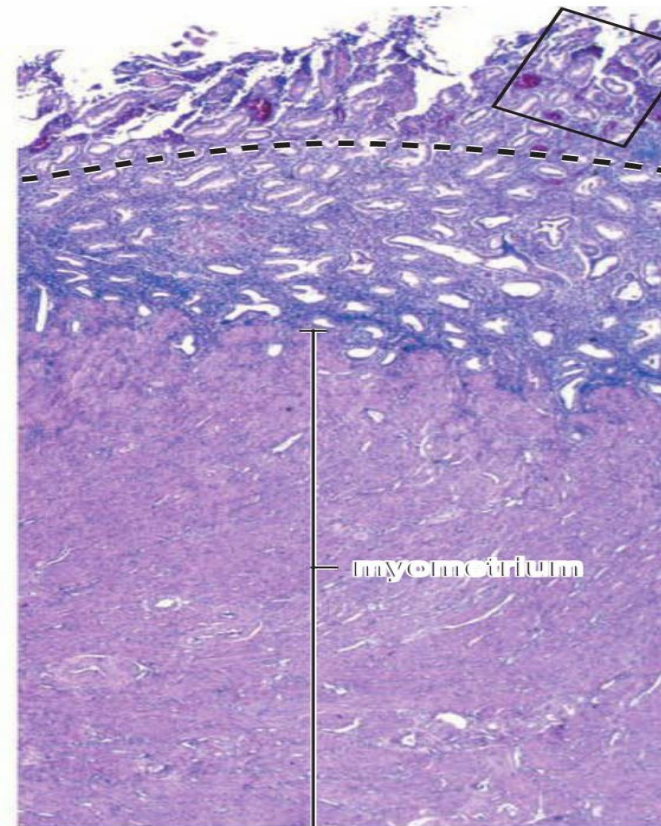
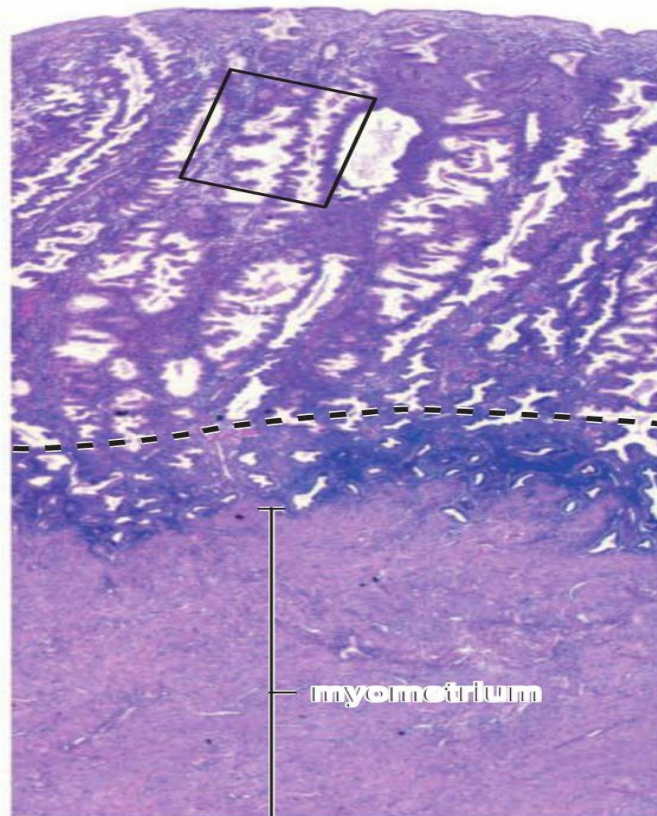
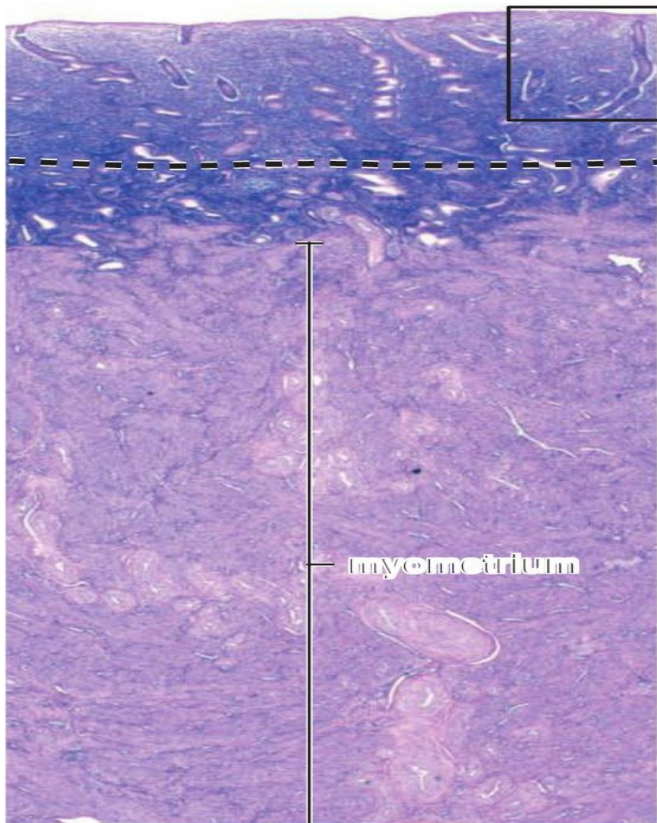
Uterus



Uterus



Uterus



Formative exam

Quiz



Which stage of the follicle is marked by the surrounding of flattened (squamous) follicular cells becoming cuboidal?

- a. Primordial follicle
- b. Primary follicle**
- c. Secondary follicle
- d. Mature follicle
- e. Graffian follicle

The appearance of the antrum is a characteristic of which stage of follicular development?

- a. Primordial follicle
- b. Primary follicle
- c. Secondary follicle**
- d. Mature follicle
- e. Graffian follicle

Quiz



A 32 year old woman comes to the physician because of concern about ovarian cancer. The patient is counseled on the risk of ovarian cancer and decides to undergo prophylactic oophorectomy because of a strong family history of cancer. Examination of ovarian tissue shows normal tissue. One section of the specimen shows many large cells, each of which is surrounded by a single layer of flat epithelial cells. Which of the following identifies the phase of the cell cycle at which these cells are arrested?

- a. Metaphase stage of mitosis
- b. Metaphase stage of the 2nd meiotic division



During fertilization, acrosomal reaction is essential to dissolve the zona pellucida surrounding the oocyte. What are the cells that share in the formation of this material?

- a. Theca interna cells
- b. Theca externa cells
- c. Cumulus oophorus cells
- d. Cells in membrana granulosa
- e. **Cells in corona radiata**

Quiz



If ovulation occurs, uterine glands consequently undergo secretory changes. Which of the following ovarian cells secretes a steroid hormone that stimulates the growth of uterine glands during the secretory phase of the menstrual cycle?

- a. **Granulosa lutein cells.**
- b. Corona radiata.
- c. Theca externa cells.
- d. Cumulus oophorus cells.
- e. Theca interna cells

Quiz



A 30-year-old woman is taking drugs to induce ovulation. If ovulation occurs, uterine glands consequently undergo secretory changes. Which of the following ovarian cells will secrete androgens in addition to progesterone?

- a. Granulosa lutein cells.**
- b. Corona radiata.**
- c. Theca lutein cells.**
- d. Cumulus oophorus cells.**
- e. Theca interna cells**

Quiz



A 27-year-old woman has an ovary removed because it contains a very large cystic mass. There are no signs of malignancy, but histologic examination of the ovarian cortex reveals an oocyte in meiotic arrest surrounded by two layers of cuboidal-like follicular cells. No antrum or zona pellucida is observed. These findings are consistent with a description of which of the following?

- ☐ A. Atretic follicle
- ☐ B. Graafian follicle
- ☒ C. Primary follicle ★
- ☐ D. Primordial follicle
- ☐ E. Secondary follicle

Quiz



A 28-year-old woman undergoes surgical removal of the ovary because it contains a large cystic mass. Histological examination of the ovarian cortex reveals an oocyte in meiotic arrest surrounded by a layer of flat follicular cells. Which of the following is the description of this follicle?

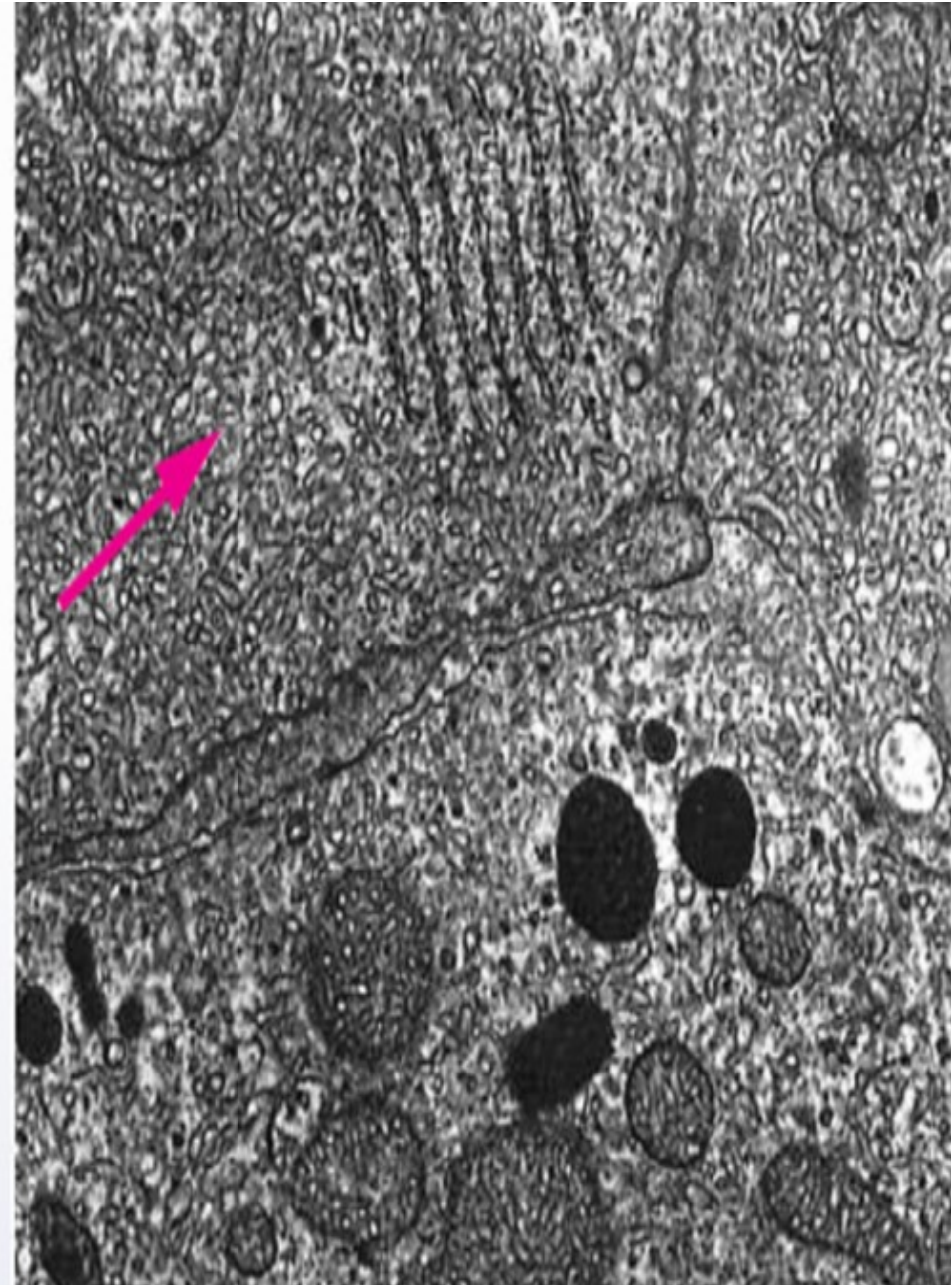
- a. Atretic follicle
- b. Graafian follicle
- c. Primary follicle
- d. Primordial follicle**
- e. Secondary follicle

Quiz



The electron micrograph shows cells from a human corpus luteum during pregnancy. The structures labeled with the arrow are much more abundant in these cells than in the cells from which luteal cells are derived in a non-pregnant individual. This increase is most likely directly related to which of the following cellular functions?

- ☐ A. Beta-oxidation of very-long-chain fatty acids
- ☐ B. Degradation of DNA
- ☐ C. Oxidative phosphorylation
- ☐ D. Post-translational modification of proteins
- ☐ E. Steroid hormone synthesis ★



Quiz



Which event corresponds to the luteal phase of the menstrual cycle?

- ☐ A. Increased FSH
- ☐ B. Activation of aromatases
- ☒ C. Suppression of LH
- ☐ D. Estrogen surge

Quiz



Which stage of ovarian follicle development is characterized by an initial period of follicular fluid accumulation?

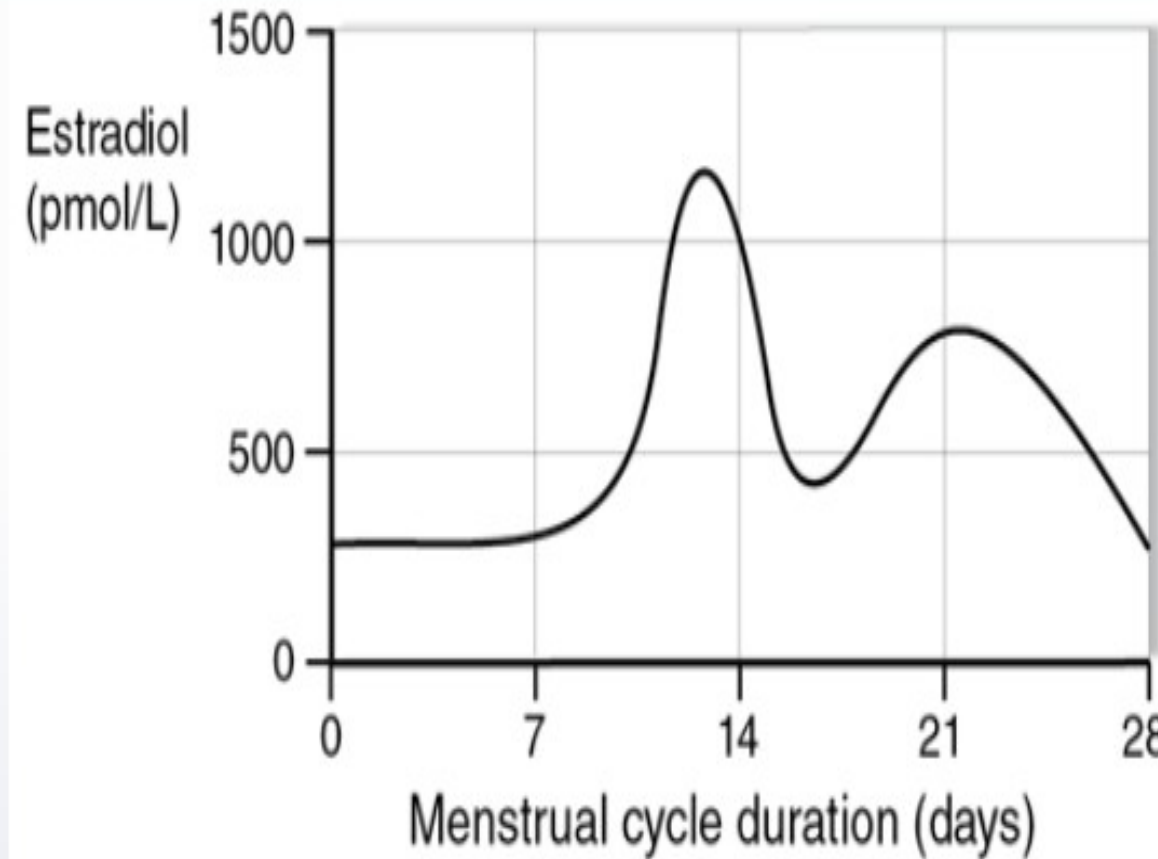
- a. Graafian follicle
- b. Mature follicle
- c. Primordial follicle
- d. Oocyte
- e. Secondary follicle

Quiz



During an investigational study, secretion of estradiol is measured daily over a 28-day menstrual cycle. The graph shows the data obtained. Which of the following structures is most likely the source of the estrogen surge seen around days 10–14?

- ☐ A. Adrenal cortex
- ☐ B. Anterior pituitary
- ☐ C. Corpus luteum
- ☐ D. Hypothalamus
- ☒ E. Ovarian follicle





Quiz



A 30-year-old obese married female presented to clinic with irregular cycles and infertility, she was diagnosed as polycystic ovarian disease. Her lab investigation revealed very high estrogen level and very low progesterone. Biopsy from her endometrium on day 20 of cycle will show which of the following?

- a. Edematous stroma
- b. Tortuous glands
- c. Desquamated necrotic surface
- d. Increased glycogen accumulation
- e. **Straight narrow glands**

Quiz



On examining the ovary of a woman, by endoscopy to take the secondary oocyte for in vitro fertilization. Which of the following structure immediately surrounds it?

- a. Zona pellucida**
- b. Corona radiata
- c. Oocyte microvilli
- d. Cumulus oophorus
- e. Membrana granulosa

Quiz



A 25-year-old woman is following the growth of her mature graffian follicles in preparation for in vitro fertilization. Which of the following is a character of its granulosa cells?

- a. Numerous lysosomes
- b. Supranuclear Golgi complex
- c. RER producing aromatase**
- d. Surrounded by capillaries
- e. Contain lipofuscin pigment

Quiz



A 45-year-old woman comes to the physician because of chronic pelvic pain. A diagnosis of uterine leiomyoma is made, and a total hysterectomy with bilateral salpingo-oophorectomy is performed. Histologic examination of an ovary shows multiple primary follicles, each containing an oocyte. These oocytes are most likely arrested at which of the following stages of meiosis?

- ☐ A. Anaphase
- ☐ B. Interphase
- ☐ C. Metaphase
- ☒ D. Prophase
- ☐ E. Telophase



What is the best description for Corona radiata?

- a. Line antrum cavity
- b. Present between theca cells and granulosa cells
- c. Anchor the oocyte to follicular wall
- d. Surround zona pellucida
- e. Form the wall of corpus luteum

Quiz



Which of the following is characteristic of granulosa lutein cells?

- a. Are a minor cell type in the corpus luteum
- b. Derive from the theca interna
- c. Contain abundant rough endoplasmic reticulum
- d. Are small and dark-staining
- e. Secrete progesterone

Quiz



Which of the following hormones is primarily responsible for inducing ovulation?

- a. Relaxin
- b. **LH**
- c. Progesterone
- d. FSH
- e. Estrogen

Quiz



A couple presents with a 2-year history of infertility. Oocytes and sperm are subsequently collected for in vitro fertilization. Which of the following cytologic findings provides evidence of fertilization?

- a. Dispersal of the corona radiata
- b. **Formation of the second polar body**
- c. Disappearance of the oocyte nucleus
- d. Sperm acrosome reaction
- e. Thinning of the zona pellucida

Quiz



An experiment is conducted in which researchers are investigating the effect of various substances during the menstrual cycle. Substance X was found to directly stimulate expression of growth factors involved in blood vessel formation and cellular proliferation. Which of the following is most likely to be substance X?

- a. Luteinizing hormone
- b. Androstenedione
- c. Follicle stimulating hormone
- d. **Estrogen**



Which of the following ovarian cells secretes a steroid hormone that stimulates the growth of uterine glands during the secretory phase of the menstrual cycle?

- a. Granulosa lutein cells.**
- b. Granulosa cells.
- c. Theca externa cells.
- d. Cumulus oophorus cells.
- e. Theca interna cells



Quiz



Which feature is characteristic of the corpora albicans but not of atretic follicles?

- a. May contain degenerating granulosa cells floating in remnants of follicular fluid
- b. **Resemble large collagenous scars**
- c. Eventually removed by macrophages and replaced by stroma
- d. Are remnants of follicles that degenerate before maturation
- e. May contain degenerating oocytes

Quiz



Primary oocyte remains suspended in meiotic prophase. Which of the following is the stimulation for continuation of the first meiotic division?

- A- Fertilization by a spermatozoon
- B- The LH surge, just prior to ovulation**
- C- The cessation of progesterone secretion
- D- The elevation of progesterone titres
- E- Increase in FSH level

Secondary oocyte remains suspended in meiotic metaphase. Which of the following is the stimulation for continuation of the second meiotic division to produce haploid gamete?

- a- Fertilization by a spermatozoon**
- b- The LH surge, just prior to ovulation
- c- The cessation of progesterone secretion
- d- The elevation of progesterone titres



You are examining a section in the ovary. Which of the following is the structural characteristic of granulosa lutein cells?

- a. Are a minor cell type in the corpus luteum
- b. Cytoplasm is deeply basophilic
- c. Contain abundant rough endoplasmic reticulum
- d. Are small and dark-staining
- e. Abundant SER and lipochrome pigment**



Which of the following histological feature accounts for the transformation of a primary to a secondary ovarian follicle?

- a. Deposition of the extracellular matrix
- b. **Extracellular fluid accumulation**
- c. Formation of a second polar body
- d. Maturation of the zona pellucida
- e. Proliferation of tissue macrophages



Quiz



If the hormone necessary for maintenance of corpus luteum was absent 12 to 14 days after ovulation in an ovary, which of the following would be the result?

- a. The absence of the corpus luteum
- b. The absence of muscularization
- c. Maintenance of the endometrium for implantation
- d. Pregnancy
- e. **The formation of a corpus albicans**

Quiz



Regarding corpus luteum, if the necessary stimulating hormone was absent 12-14 days after ovulation, which of the following types would be the result?

- a)Corpus albicans.**
- b)Corpus hemorrhagica
- c)Corpus luteum of pregnancy
- d)Corpus luteum of menstruation
- e)Corpus luteum of fertilization

Quiz



A 55-year-old woman comes to the physician because of a feeling of intense heat over her trunk and face that is accompanied by flushing of the skin. She says that this has been occurring more frequently over the past 3 months. The episodes last a couple of minutes and then subside. She states that she also has reduced vaginal lubrication and dyspareunia that makes having sex very uncomfortable. Which of the following is most likely to be seen in this patient?

FSH = follicle-stimulating hormone; GnRH = gonadotropin-releasing hormone; hCG = human chorionic gonadotropin; LH = luteinizing hormone.

- ☐ A. Decreased FSH, decreased LH, increased estrogen
- ☐ B. Increased FSH, decreased LH, decreased GnRH
- ☐ C. Increased hCG, increased estrogen, increased progesterone
- ☐ D. Increased LH, increased estrogen, increased progesterone
- ☐ E. Increased LH, increased FSH, increased GnRH



Quiz



The endometrium biopsy of a 25-year-old female shows a tortuous appearance of uterine gland with congestion in blood vessels. Which of the following is characteristic of this stage of menstrual cycle?

- a. Depends on presence of corpus luteum in ovary
- b. Coincides with development of ovarian follicle
- c. Precedes the ovulation process
- d. Has ischemia and necrosis in stratum functionale
- e. Produced due to sudden drop in estrogen level

Quiz



What are the cells that share in the formation of zona pellucida and their process traverses it?

- a. Theca interna cells
- b. Theca externa cells
- c. Cumulus oophorus cells
- d. Cells in membrana granulosa
- e. **Cells in corona radiata**

Quiz



A 43-year-old woman, gravida 0, para 0, comes to the clinic because of abnormal vaginal bleeding. Her menstrual cycle has been irregular since menarche but her periods have recently become much heavier. Her last menstrual period was one week ago, which was heavy and lasted 10 days. She is 165 cm (5 ft 5 in) tall and weighs 92 kg (203 lb); BMI is 33.8 kg/m². Her temperature is 36.6°C (96.8°F), pulse is 66/min, respirations are 14/min, and blood pressure is 130/80 mm Hg. Bimanual pelvic examination shows the uterus is uniformly enlarged, mobile, anteverted, and anteflexed. The proliferation of which of the following epithelial subtypes is the most likely cause of this patient's symptoms?

- ☐ A. Pseudostratified columnar epithelium
- ☒ B. Simple columnar epithelium
- ☐ C. Simple squamous epithelium
- ☐ D. Stratified squamous epithelium
- ☐ E. Transitional epithelium

Quiz



A healthy 10-year-old girl is brought to the physician for a routine health maintenance examination. The physician notes that the child has Tanner stage 1 breast development. Most of the oocytes in the ovaries of this girl are in which meiotic stage?

- ☐ A. Anaphase of meiosis II
- ☐ B. Metaphase of meiosis I
- ☐ C. Metaphase of meiosis II
- ☒ D. Prophase of meiosis I
- ☐ E. Telophase of meiosis I

Quiz



A 35-year-old woman comes to the physician because of heavy menstrual bleeding. Examination of tissue obtained on a biopsy of endometrial tissue shows a thick endometrium with long, coiled glands lined by a columnar epithelium with prominent cytoplasmic vacuoles adjacent to the gland lumen. Earlier in the menstrual cycle, the glands were much smaller and were lined with cells that did not have vacuoles. Which of the following hormones is primarily responsible for these changes in endometrial morphology between earlier and later stages of the menstrual cycle?

- ☐ A. Estrogen
- ☐ B. Follicle-stimulating hormone
- ☐ C. Luteinizing hormone
- ☒ D. Progesterone
- ☐ E. Testosterone

Quiz



A 17-year-old girl with a history of pelvic inflammatory disease presents at the emergency department with severe pain in her lower right side that came on fairly quickly. Upon questioning, she replies that her last menstrual period was 6 weeks ago and that she has never missed a period before. The doctor suspects she has an ectopic pregnancy and this is quickly confirmed by ultrasound testing. The surgeon removes her right uterine tube that is inflamed, scarified, and contains the implanted embryonic tissue in the region where fertilization normally occurs. Where is this?

- a. The uterine part of the oviduct
- b. The ampulla region with highly folded mucosa
- c. The only oviduct region attached to the mesosalpinx

Quiz



Endometrial glands are typically most fully developed and filled with product during which day(s) or phase of a woman's menstrual cycle?

- a. Menstrual phase
- b. Days 1-4
- c. The day ovulation occurs
- d. Proliferative phase
- e. Days 15-28**

Quiz



Which feature is characteristic of the endometrium's basal layer but not of its functional layer?

- a. Includes the uterine surface epithelium
- b. Includes connective tissue
- c. Contains cells that replace the surface epithelium after menstruation
- d. Relies solely on spiral arteries for its blood supply
- e. Undergoes cyclic thickening and shedding

Quiz



A 25-year-old woman with no significant past medical history comes to the emergency department with severe abdominal pain and vaginal bleeding for the past 6 hours. The patient reports her last menstrual period was 6 weeks ago. Urinary human chorionic gonadotropin (hCG) is positive. Quantitative hCG is pending. Pelvic ultrasound shows no intrauterine gestation and a right adnexal mass. The patient shows exquisite tenderness in the right adnexal region during the sonographic examination. Hemorrhagic fluid is present in the pelvis. The patient undergoes an emergent laparotomy, where the surgeon discovers a ruptured ectopic pregnancy. Which of the following is the most likely location of the ectopic pregnancy?

- ☐ A. Abdomen
- ☒ B. Ampulla of the fallopian tube
- ☐ C. Isthmus of the fallopian tube
- ☐ D. Ovary
- ☐ E. Uterine horn/cornu

Quiz



A healthy 24-year-old woman comes to the physician because she has been unsuccessfully trying to become pregnant for the past 2 years. She has regular menstrual cycles, each lasting 28 days. Daily blood samples have been collected for the previous 4 weeks. Over the past 3 days, they show decreasing progesterone and estradiol levels. Serum luteinizing hormone (LH) and follicle-stimulating hormone (FSH) levels are low and are beginning to increase. Basal body temperature begins falling. Which of the following events is most likely to occur within the next 3 days?

- ☐ A. Markedly increased inhibin levels
- ☒ B. Menstruation
- ☐ C. Ovulation
- ☐ D. Rapidly decreased LH levels
- ☐ E. Significantly increased basal body temperature

Quiz



A 32-year-old woman comes to the emergency department because of the sudden onset of right lower quadrant abdominal pain and vaginal bleeding. She has a history of untreated pelvic inflammatory disease occurring 3 years ago. Physical examination shows right lower quadrant tenderness. Serum beta-hCG is positive. Transvaginal ultrasound confirms the diagnosis. Which of the following underlying mechanisms is the most likely cause of her signs and symptoms?

- ★ A. Delayed transport of the blastocyst
- ☐ B. Lack of adherence of the embryo to surface epithelial cells
- ☐ C. Loss of the zona pellucida
- ☐ D. Preimplantation loss
- ☐ E. Separation of the inner and outer cell masses of the blastocyst

Quiz



A 32-year-old woman comes to the emergency department because of the sudden onset of right lower quadrant abdominal pain and vaginal bleeding. She has a history of untreated pelvic inflammatory disease occurring 3 years ago. Physical examination shows right lower quadrant tenderness. Serum beta-hCG is positive. Transvaginal ultrasound confirms the diagnosis. Which of

the following is the cause of delayed transport of blastocyst?

- a. Impaired function of Peg cells
- b. Decreased motility of fimbriated end of the fallopian tube
- ★ c. Impairment of the ciliated cells
- d. Widening of the fallopian tube
- e. Lack of adherence of the embryo to the fallopian tube cells

Quiz



A 26-year-old woman comes to the physician because of changes in her menstrual cycle. She reports that her periods have been irregular for the past 6 months, with heavy bleeding during her period and intermittent bleeding between periods. She is currently sexually active with one male partner, and they use condoms for contraception. She denies the use of birth control medication or hormonal therapy. Pelvic examination shows no abnormalities or focal tenderness, and there is no evidence of genital trauma. Urine and serum HCG are negative but there is an increase in serum estrogen. Pelvic ultrasound shows

ovary, and the left ovary is normal. Which of the following cell types is most likely to be found in the mass?

- ☐ A. Endometrial cells
- ☐ B. Epithelial cells
- ☒ C. Granulosa cells
- ☐ D. Theca-interna cells
- ☐ E. Theca-lutein cells

Quiz



29-year-old woman is trying to become pregnant. She presents with irregular menstrual cycles and heavy, prolonged, irregular uterine bleeding and undergoes an endometrial biopsy. The biopsy has the appearance shown in the photomicrograph below. Which of the following is characteristic of this stage

a. It precedes ovulation of the menstrual cycle?



b. It depends on progesterone secretion by the corpus luteum

c. It coincides with the development of ovarian follicles

d. It coincides with a rapid drop in estrogen levels

Quiz



A 33-year-old woman with an average menstrual cycle of 28 days comes for a routine Pap smear. It has been 35 days since the start of her last menstrual period. As her physician, you suspect which of the following?

- a. She will begin menstruating in a few days
- b. She will ovulate within a few days
- c. Her serum progesterone levels are very low
- d. **There are detectable levels of hCG in her serum and urine**



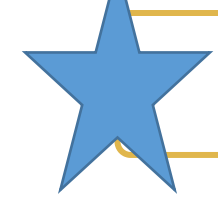
The peg cells are characterized by which of the following?

- a. Numerous apical cilia
- b. Basal membrane infoldings
- c. **Abundant RER**
- d. Apical brush border
- e. Abundant SER



The cervix is characterized by which of the following?

- a. Undergoing cyclic thickening of epithelium
- b. Lined totally by stratified squamous epithelium.
- c. Undergoing cyclic shedding of epithelial lining.
- d. Having cells responsible for formation of mucus plug
- e. Being the normal site for blastocyst implantation



Quiz



A 35-year-old woman with regular cycles visits her gynecologist complaining of mild, right sided, lower abdominal pain but no other symptoms. Her last period occurred 16 days ago. Which of the following endometrial changes corresponds to this stage of the patient's menstrual cycle?

- a) Glandular cells undergoing mitosis.
- b) Degeneration of the glandular structures
- c) Glandular glycogen accumulation
- d) Ischemia and necrosis of the functionalis
- e) Tissue expansion by cellular hypertrophy**

Quiz



A 32-year-old married woman presented with irregular cycles and infertility. On examination she was found to have enlarged ovaries and hirsutism. Which of the following is most likely the reason of this patient`s infertility?

- a. Oviduct obstruction
- b. Lack of ovulation**
- c. Enhancement of follicular atresia
- d. Disruption of decidual tissues
- e. Disappearance of zona pellucida

Quiz



A 19-year-old woman presents with a 24-hour history of intense abdominal pain. She states that she has missed two menstrual periods. Imaging studies reveal an ectopic pregnancy in the ampulla of the uterine tube. Which of the following is the lining epithelium of this part?

- a. SER rich peg cells
- b. Columnar cells with stereocilia
- c. **RER rich peg cells**
- d. Flat cells with pseudopodia
- e. Cuboidal cell rich in lipids

Quiz



A 30 year old female presented with secondary infertility due to tubal dysfunction and inability of nutrition of oocyte nor capacitation of the sperm. This is due to dysfunction of which of the following of its lining cells?

- a. Columnar ciliated cells
- b. Facet containing
- c. Peg cells**
- d. Chief cells
- e. Stroma cells

Quiz



A 45 year old woman is going to the clinic for routine checkup. The doctor is concerned with examination of the transformation zone of the cervix to check for early signs of cervical cancer. What are the normal changes in the epithelium at this zone?

- a. From simple squamous in the endocervix to simple columnar in the ectocervix
- b. From simple cuboidal in the endocervix to simple columnar in the ectocervix
- c. From simple columnar in the endocervix to stratified squamous in the ectocervix**
- d. From stratified cuboidal in the endocervix to stratified columnar in the ectocervix

Quiz



Which of the following is a character of the endometrium during the secretory phase of the menstrual cycle is characterized by?

- A- Tortuous appearance of the uterine glands
- B- Proliferation in the base of endometrial glands
- C- Necrosis and shedding of functional layer of endometrium
- D- Contraction of the coiled arteries of functional layer of endometrium
- E- Short endometrial glands with narrow lumen

Quiz



A 30-year-old obese married female presented to clinic with irregular cycles and infertility, she was diagnosed as polycystic ovarian disease. Her lab investigation revealed very high estrogen level and very low progesterone Biopsy from her endometrium on day 20 of cycle will show which of the following?

- a. Edematous stroma
- b. Tortuous glands
- c. Desquamated necrotic surface
- d. Increased glycogen accumulation
- e. Straight narrow glands**

Quiz



A 35-year-old woman come to the physician because of heavy menstrual bleeding. Examination of a biopsy of endometrial tissue showed thick endometrium with long coiled glands lined by columnar cells showing vacuolated cytoplasm. Which of the following characterizes the cells secreting the hormone responsible for this endometrial morphology?

a.RER

b.SER

c.Lysosomes

d.Peroxisomes

e.endosomes

Quiz



Fallopian tube has a mucosa lined by ciliated epithelial cells and nonciliated “peg” cells. Proteins secreted by the peg cells are believed to mediate which of the following biological functions related to fertilization?

- (A) Block to polyspermy
- (B) Capacitation of sperm**
- (C) Formation of an endocervical plug
- (D) Lysis of the zona pellucida
- (E) Sperm acrosome reaction



Give reason for each of the following

Cervix does not undergo cyclic changes?

The mucosa of cervix has no coiled arteries and does not undergo hormonal cyclic change

Transformation zone at the external os

No ovum in virgins?

Because the secondary oocyte becomes arrested at the metaphase of the secondary meiotic division and only after fertilization this division is completed to give the secondary polar body

Zona pellucida is acidophilic

Which of the following concerning secretory phase of endometrium is true?

- A- Mitosis of stroma and epithelium occurs
- B- **Spiral arteries extend to the upper third of endometrium**
- C- This phase is under the effect of estrogen
- D- The glands are dilated and full of secretion

During pregnancy, which hormone maintains the corpus luteum?

- a. FSH
- b. LH
- c. **HCG**
- d. Estrogen
- e. Progesterone

Which of the following concerning proliferative phase of endometrium is true?

- a. Mitosis of stroma and epithelium occurs
- b. Spiral arteries extend to the lower third of endometrium
- c. This phase is under the effect of progesterone
- d. The glands are dilated and full of secretion

Describe the cells found in the corpus luteum

Compare between the different types of corpus luteum

Compare between



Oogenesis and spermatogenesis

Start		
Pauses		
Result		

Describe the histological structure of the ovarian cortex during the first half of the cycle

What are the histological feature of a D&C biopsy taken on day 10 of the cycle?

Thank You